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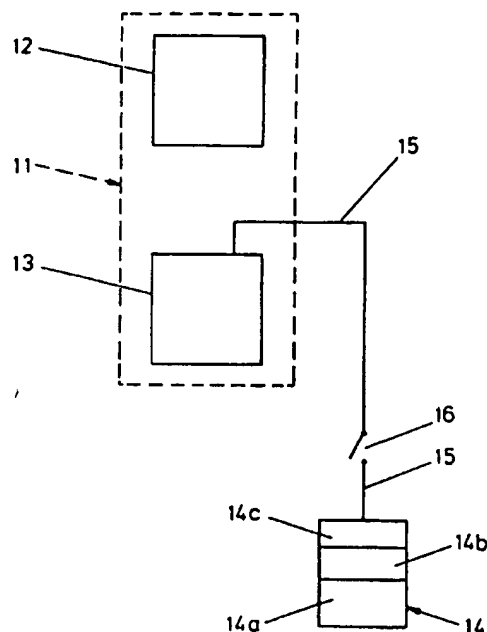
(58) Field of Search

UK CL (Edition O ) H4D DAB DPBC, H4L LDRR LDRSF  
LDRSX  
INT CL<sup>6</sup> G01S

## (54) Position communication

(57) A communication system is described which comprises a cellular telephone 11 in combination with a GPS location device 14. The location device 14 is adapted to continuously monitor and store the location of the mobile telephone 11, and a line 15 is provided between the location device 14 and the mobile telephone 11 such that on activation, eg by an emergency switch, information including the location of the device is automatically transmitted to a remote receiving unit or units. Location may be transmitted on a different wavelength from speech.

FIG. 1



At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

The claims were filed later than the filing date within the period prescribed by Rule 25(1) of the Patents Rules 1995

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FIG. 1

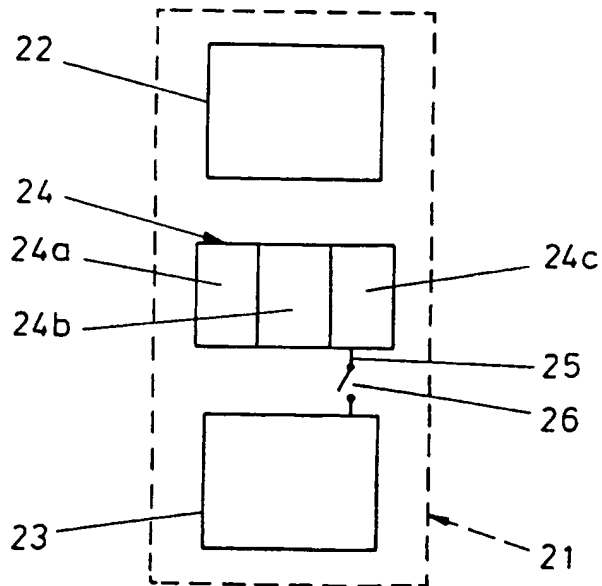
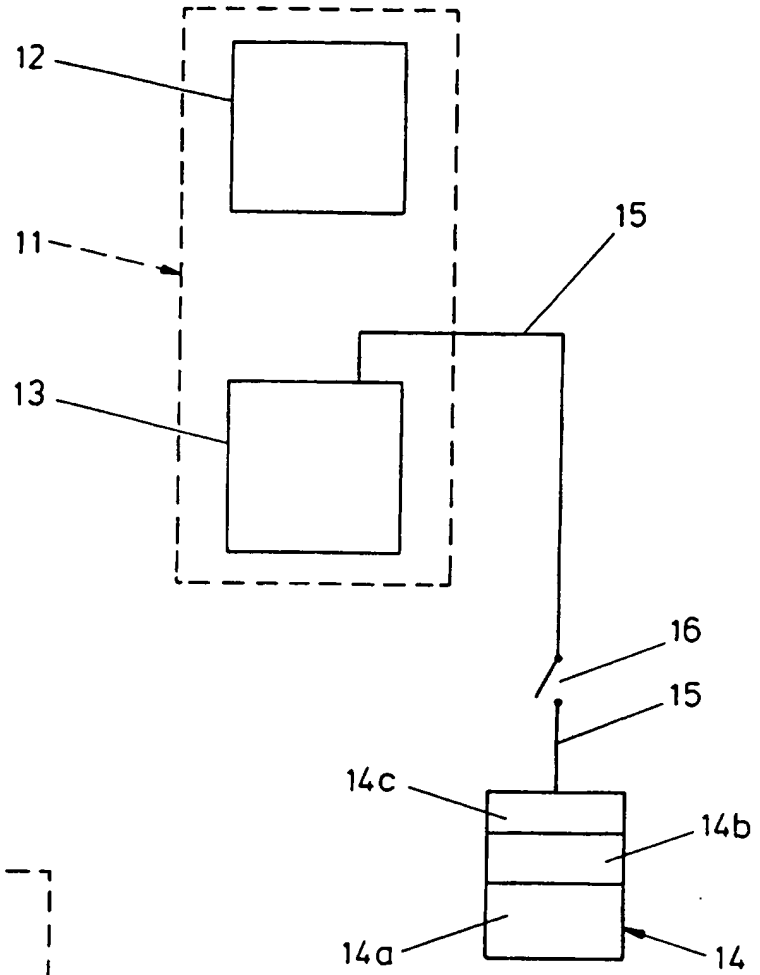


FIG. 2

### COMMUNICATION MEANS

This invention relates to communication means and, more particularly, to mobile communication means.

It is well known in the art for transmitters for communication means to be mobile, for example the transmitter may comprise a standard cell phone apparatus which can be carried about and therefore has a relatively mobile location. Nevertheless, the mobile phone can be used as a normal telephone and can communicate directly with other telephone number locations, including emergency services.

It is also known in the art for movable vehicles, for example ships, cars, lorries and the like transportation means, to be provided with location identification apparatus and whereby signals received from satellites can be used to fix the location of the vehicle anywhere on the globe with great accuracy. Such locating means as are in use today and, being generally fixed to a vehicle, have few limitations on the size and weight of the locating means.

It often happens that persons, particularly persons engaged in dangerous activities, such as boating, climbing and the like activities where an emergency could arise, require the assistance of an emergency service. With a mobile communication means the desired emergency service can be contacted but the person transmitting may have difficulty identifying the emergency location and, in for example a

boating accident or emergency, the boat may be moving, giving the emergency service responding to the emergency call great difficulty in making the desired contact with the distress location. Further, even when the desired emergency service has been contacted and given the location of the distress location, contact may be lost with the distress location whilst the emergency service is travelling to the distress location and/or the distress location has changed and time is spent in re-determining the exact location of the emergency.

The present invention overcomes the above problems by providing a communication system comprising a mobile transmitter in combination with a location device, the location device being adapted to continuously monitor the location of the transmitter, with a transmission link between the location device and the transmitter whereupon, on activation, information including the location of the device is automatically transmitted to a remote receiving unit or units.

In a preferred embodiment the mobile transmitter comprises a cellular telephone.

In a preferred embodiment the location device is adapted to receive signals from at least one satellite and to determine from the signals received from the satellites the exact location of the communication system.

Preferably the location device is housed within the mobile telephone.

In a preferred embodiment the location device includes an electronic chip device adapted to receive and store the location of the device and to be continuously updated by signals received from the satellites so that the location device is always storing the actual location of the device.

Preferably the mobile transmitter includes an emergency switch which, when activated, causes signals to be transmitted from the location device to the remote receiving unit or units.

In a preferred embodiment, and with the emergency switch activated, the location device is adapted to transmit the information communicating the exact location of the mobile transmitter to the remote receiving unit or units and the information transmitted preferably includes an identification code individual to the mobile transmitter.

In one embodiment the location device transmits the information relating to the location of the device whilst normal speech of the mobile transmitter is disconnected but in another embodiment the information identifying the location of the device is imposed on the normal verbal communication device, whereupon the mobile transmitter can be used for verbal transmissions whilst the location device is transmitting the location signals to the receiver unit or units.

In one embodiment the location device information is transmitted on a different wave length to the verbal transission.

The invention will now be described further by way of example with reference to the accompanying drawings in which:

Fig 1 shows, diagrammatically, one embodiment in accordance with the invention and,

Fig 2 shows, again diagrammatically, an alternative embodiment of the invention.

In the embodiment illustrated in Fig 1 a conventional mobile telephone, generally indicated by number 11, includes a receiving device 12 and a transmitting device 13. The receiving device 12 and transmitting device 13 is of the conventional form found in mobile telephones, the circuitry between the receiving device 12 and transmitting device 13 is also of conventional form and no further description of said part or their inter connecting circuitry is necessary herein.

The device also includes a location device 14, including means 14a for receiving signals from satellites, means 14b for translating the signals received from the satellites to establish the exact location of the device 14 and a memory 14c which stores the location of the device 14 and is being continuously updated with location information as the device is moved, so that the memory 14c always has the exact location of the device 14 stored therein.

The device 14 is connected to the transmitter 13 of the mobile phone by a line 15, which includes a switch 16, and whereupon, when the switch 16 is closed, the device 14 transmits the information stored in the memory 14c to the transmitter 13 for transmission to a remote receiving location or locations.

Preferably the information transmitted from the location device 14 to the transmitter 13 is preceded by, and/or is followed by, a code identifying the mobile telephone.

With the above arrangement it will be appreciated that the mobile telephone 11 can be used as a conventional mobile telephone but, in the event of an emergency arising, the switch 16 can be closed and signals identifying the mobile phone 11 and giving the location of the device 14 is transmitted from the memory 14c to a receiving unit or

units, and which may comprise an emergency service unit or emergency service units.

With the arrangement illustrated in Fig 1 the location device 14 is linked to the mobile phone 11 via the line 15, and whereby the device 14 may be carried in one part of a persons clothing, equipment or on a vehicle and the mobile phone 11 may be carried in a different location in the persons clothing, equipment or the vehicle.

The emergency switch 16 is conveniently located at some easily accessible place, so as to be readily accessible by a person using the phone 11.

Thus, with the switch 16 open, the mobile phone 11 can be used in the normal way but in the event that the switch is closed the transmitter 13 will immediately commence the transmission of the information stored in the memory 14c, that is to say an identification of the mobile phone 11 and the location of the mobile phone 11.

The information transmitted via the line 15 to the transmitter 13 may be arranged to interrupt the normal verbal transmission from the phone 11 via the transmitter 13 and, conveniently, a number of transmissions of the information stored in the memory 14c may be transmitted at fixed spaced apart periods, so that the user can use the normal telephone for verbal communication with the emergency service unit, and the location information is automatically transmitted when at spaced apart time intervals even when the transmitter 13 is disconnected from the normal speech mode.

In another embodiment in accordance with the invention the information transmitted from the memory store 14c via the line 15 to the transmitter 13 may be differently arranged from the conventional verbal transmission signals, for

example the information transmitted from the device 14 to the transmitter 13 may be of a different wave length and whereupon speech may be maintained at all times, even when the memory 14c is transmitting the location information via the transmitter 13.

In the embodiment illustrated in Fig 2 a mobile phone 21 has the conventional receiver 22 and transmitter 23 with the conventional connection therebetween and, as such units and connections are very well known in the art, no further description thereof is necessary herein.

However, in this example, the location device 24 is located in the casing for the telephone 21 and again comprises means 24a for receiving signals from satellites, means 24b for translating the signals received from the satellites to establish the exact location of the device 11 and a memory 24c which stores the location of the telephone device 21 and is being continuously updated with location information as the device is moved, so that the memory 24c always has the exact location of the telephone 21 stored therein.

The location device 24 is connected to the transmitter 23 via a line 25, which includes a switch 26, whereupon with the switch 26 open the mobile phone 21 can be used as a conventional mobile telephone but with the switch 26 closed the memory 24c transmits location information pertinent to the mobile phone 21 to the transmitter 23.

It will be appreciated that in operation the Fig 2 device may include an arrangement for repeating the transmission of the location signals from the memory 24c via the transmitting device 23, so that the location of the device is being continuously updated at the emergency unit and, via the normal communication between the emergency vehicle and the emergency unit, the emergency vehicle can have a continuous update on the location of the emergency call.



## CLAIMS:

1. A communication system comprising a mobile transmitter in combination with a location device, the location device being adapted to continuously monitor the location of the transmitter, with a transmission link between the location device and the transmitter whereupon, on activation, information including the location of the system is automatically transmitted to a remote receiving unit or units.

2. A system according to claim 1, wherein the mobile transmitter comprises a cellular telephone.

3. A system according to claim 1 or 2, wherein the location device is adapted to receive signals from at least one satellite and to determine from the signals received from the satellites the exact location of the communication system.

4. A system according to claim 3, wherein the location device includes an electronic chip device adapted to receive and store the location of the device and to be continuously updated by signals received from the satellites so that the location device is always storing the actual location of the device.

5. A system according to any one of the preceding claims, wherein the location device is housed within a mobile telephone.

6. A system according to any one of the preceding claims, wherein the mobile transmitter includes an emergency switch which, when activated, causes signals to be transmitted from the location device to the remote receiving unit or units.

7. A system according to claim 6, wherein with the emergency switch activated, the location device is adapted to transmit the information communicating the exact location of the mobile transmitter to the remote receiving unit or units.

8. A system according to any one of the preceding claims, wherein the information transmitted includes an identification code individual to the mobile transmitter.

9. A system according to any one of the preceding claims, wherein the location device transmits the information relating to the location of the device whilst normal speech of the mobile transmitter is disconnected.

10. A system according to any one of claims 1 to 8,

wherein the information identifying the location of the device is imposed on the normal verbal communication device, whereupon the mobile transmitter can be used for verbal transmissions whilst the location device is transmitting the location signals to the receiver unit or units.

11. A system according to any one of the preceding claims, wherein the location device information is transmitted on a different wave length to the verbal transmission.

12. A communication system substantially as hereinbefore described with reference to the accompanying drawings.



Application No: GB 9508706.0  
Claims searched: all

Examiner: Dr E P Plummer  
Date of search: 27 June 1996

**Patents Act 1977**  
**Search Report under Section 17**

**Databases searched:**

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.O): H4D(DAB,DPBC), H4L(LDRR,LDRSF,LDRSX)

Int Cl (Ed.6): G01S

Other:

**Documents considered to be relevant:**

| Category | Identity of document and relevant passage |  | Relevant to claims |
|----------|---|--|--------------------|
| X        | GB2271486A                                | MOTOROLA<br>whole document                               | 1-5,8-10           |
| X        | GB2270405A                                | DAVID JOHN BARRON<br>whole document                      | 1,2,3,6,7          |
| X        | GB2264837A                                | KOKUSAI DENSHIN DENWA<br>in particular, page 20 line 8ff | 1-4,<br>8,10,11    |
| X        | EP0528090A1                               | CAE-LINK CORP<br>whole document                          | 1-5,8              |
| X,E      | WO95/29410A1                              | GENERAL ELECTRIC CO<br>whole document                    | 1,3,8              |
| X        | WO95/00860A1                              | VAN BUREN<br>whole document                              | 1-8                |
| X        | WO94/15412A1                              | STANFORD TELECOMMUNICATIONS<br>page 14 line 32 ff        | 1-4,<br>6,7,8,10   |
| X        | WO90/08371A1                              | COLES<br>whole document                                  | 1-8                |

X Document indicating lack of novelty or inventive step  
Y Document indicating lack of inventive step if combined with one or more other documents of same category.

& Member of the same patent family

A Document indicating technological background and/or state of the art.  
P Document published on or after the declared priority date but before the filing date of this invention.

E Patent document published on or after, but with priority date earlier than, the filing date of this application.



# The Patent Office

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Application No: GB 9508706.0  
Claims searched: all

Examiner: Dr E P Plummer  
Date of search: 27 June 1996

| Category | Identity of document and relevant passage   | Relevant to claims |
|----------|---|--------------------|
| X        | New Scientist 11 October 1984 pages 45 to 48, particularly page 46 column 2 lines 9 to 23 | 1,8                |

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|---|---|---|--|
| X | Document indicating lack of novelty or inventive step   | A | Document indicating technological background and/or state of the art.  |
| Y | Document indicating lack of inventive step if combined with one or more other documents of same category. | P | Document published on or after the declared priority date but before the filing date of this invention.          |
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